

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

re patent application of:  
Wagner et al.

MMB Docket No. 1890-0031

Application No. 10/750,226

Filed: December 31, 2003

For: Piezoelectric Resonator  
Apparatus with Acoustic Reflector)

Examiner: To be assigned

Group Art Unit: To be assigned

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James D. Wood

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Signature

April 12, 2004

Date of Signature

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 CFR §1.56, Applicant hereby discloses the following references,  
copies of which are enclosed, regarding the above-identified patent application.

Patent References

U.S. Patent No.

4,166,967

5,821,833

6,087,198

Inventor

Benes et al.

Lakin

Panasik

Issue Date

September 4, 1979

October 13, 1998

July 11, 2000

**Articles**

- 1) Lakin, K. M. et al., "Solidly Mounted Resonators and Filters", IEEE Ultrasonics Symposium, 1995, pages 1 – 4, (4 pages).
- 2) Lakin K. M. et al., "High-Q Microwave Acoustic Resonators and Filters", IEEE Transactions on Microwave Theory and Techniques, Volume 41, No. 12, December 1993, pages 2139 – 2146, (8 pages).
- 3) Naik, Rajan S. et al., "Measurements of the Bulk, C-Axis Electromechanical Coupling Constant as a Function of AIN Film Quality," IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, Volume 47, No. 1, January 2000, pages 292 – 296, (5 pages).
- 4) Mansfeld G. D. et al., "Theory and Numerical Analysis of Bulk Acoustic Wave Multilayer Composite Resonator Structure", IEEE Ultrasonics Symposium, Institute of Radioengineering and Electronics, Russian Academy of Sciences, Moscow, Russia, 1997, pages 891 – 894, (4 pages).
- 5) Li, E. Herbert et al., "Genetic Algorithms for Reflective Filters Design", IEEE, 2001, pages 9-12, (4 pages).

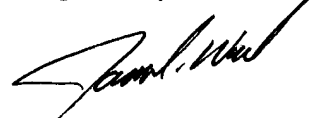
Documents U.S. 5,821,833 and U.S. 4,166,967, as well as the Article, "Measurements of the Bulk, C-Axis Electromechanical Coupling Constant as a Function of AIN Film Quality" were cited in the International Preliminary Examination Report (copy enclosed) and/or the International Search Report (copy enclosed) in a related PCT patent application number PCT/EP02/06144 filed on June 4, 2002.

Documents U.S. 4,166,967 and U.S. 6,087,198, as well as Articles, "High-Q Microwave Acoustic Resonators and Filters", "Theory and Numerical Analysis of Bulk Acoustic Wave Multilayer Composite Resonator Structure", and "Genetic Algorithms for Reflective Filters Design" were cited in the German patent application number 101 31 129.2-35 filed on July 30, 2001.

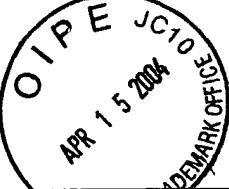
It is believed that no fees are due for the consideration of this Information Disclosure Statement. However, the Commissioner is hereby authorized to charge any deficiency or to credit any overpayment to Deposit Account No. 13-0014, but not to include any payment of issue fees.

April 12, 2004  
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Respectfully Submitted,



James D. Wood  
Attorney for Applicants  
Registration No. 43,285

FORM PTO-1449 INFORMATION DISCLOSURE STATEMENT 	MMB DOCKET NO. 1890-0031	APPLICATION NO.: 10/750,226
	APPLICANT(S): Aigner et al.	
	FILING DATE: December 31, 2003	GROUP ART UNIT: To be assigned

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA	4,166,967	September 4, 1979	Benes et al.			
	AB	5,821,833	October 13, 1998	Lakin			
	AC	6,087,198	July 11, 2000	Panasik			
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL						Yes No
	AM						Yes No
	AN						Yes No
	AO						Yes No
	AP						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AQ	<u>1</u>	Lakin, K. M. et al., "Solidly Mounted Resonators and Filters", IEEE Ultrasonics Symposium, 1995, pages 1 – 4, (4 pages).
	AR	<u>1</u>	Lakin K. M. et al., "High-Q Microwave Acoustic Resonators and Filters", IEEE Transactions on Microwave Theory and Techniques, Volume 41, No. 12, December 1993, pages 2139 – 2146, (8 pages).
	AS	<u>1</u>	Naik, Rajan S. et al., "Measurements of the Bulk, C-Axis Electromechanical Coupling Constant as a Function of AIN Film Quality," IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, Volume 47, No. 1, January 2000, pages 292 – 296, (5 pages).

EXAMINER	DATE CONSIDERED
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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicants.

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FORM PTO-1449  
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	BA						
	BB						
	BC						
	BD						
	BE						
	BF						
	BG						
	BH						
	BI						
	BJ						
	BK						

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	BL						Yes No
	BM						Yes No
	BN						Yes No
	BO						Yes No
	BP						Yes No

**OTHER (Including Author, Title, Date, Pertinent Pages, etc.)**

	AQ	<u>2</u>	Mansfeld G. D. et al., "Theory and Numerical Analysis of Bulk Acoustic Wave Multilayer Composite Resonator Structure", IEEE Ultrasonics Symposium, Institute of Radioengineering and Electronics, Russian Academy of Sciences, Moscow, Russia, 1997, pages 891 – 894, (4 pages).
	AR	<u>2</u>	Li, E. Herbert et al., "Genetic Algorithms for Reflective Filters Design", IEEE, 2001, pages 9 – 12, (4 pages).
	AS	<u>2</u>	

EXAMINER

DATE CONSIDERED

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